UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,366	01/14/2002	Anthony Vetro		1572

7590 03/30/2005	EXAMINER
Patent Department	TALAPATRA, ANIKA F
Mitsubishi Electric Research Laboratories, Inc.	

	ART UNIT	PAPER NUMBER
201 Broadway	2631	
Cambridge, MA 02139		

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
	10/046,366	VETRO ET AL.
Office Action Summary	Examiner	Art Unit
	Anika Talapatra	2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 January 2002</u>.
2a) ☐ This action is **FINAL**.　　2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213. ·

Disposition of Claims

4) ☒ Claim(s) <u>1-8</u> is/are pending in the application.
　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-8</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>14 January 2002</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a) ☐ All　b) ☐ Some * c) ☐ None of:
　　　1. ☐ Certified copies of the priority documents have been received.
　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1.   Claims 1-8 rejected under 35 U.S.C. 102(e) as being anticipated by Christopoulos et al. (U.S. Patent 5940130) (hereafter referred to as Christopoulos).

As to claim 1, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: decoding the frames (column 6, lines 24-52; figure 1, 101); storing the decoded frames in a first frame store, or frame buffer (column 6, lines 44-53; figure 1, 109); down-sampling the decoded frames to reduced resolution (column 6, lines 53-65; figure 1, 113); storing the reduced resolution frames in a second frame buffer (column 6, line 66- column 7, lines 9; figure 1, 119); and partially encoding the reduced resolution frames to produce a reduced

resolution compressed bitstream of the video (column 7, lines 14-49; figure 1, 127).

As to claim 2, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: variable length decoding of the bitstream to yield an output comprising full-resolution motion vectors and quantized Discrete Cosine Transform (DCT) coefficients for each block in each frame (column 6, lines 53-65; figure 1, 101); inverse quantizing the quantized DCT coefficients for each block in each frame (column 6, lines 35-44; figure 1, 103); applying an inverse DCT to the inverse quantized blocks of the frames (column 6, lines 43-52; figure 1, 105); and motion compensating with full resolution motion vectors of the stored decoded frames (column 6, lines 43-52; figure 1, 107) .

As to claim 3, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: motion compensating with reduced resolution motion vectors of the stored reduced resolution frames (column 7, lines 1-10; figure 1, 122); applying a DCT to the motion compensated difference of the reduced resolution frames (column 7, lines 27-38; figure 1, 121); quantizing DCT blocks of the frames (column 7, lines 10-13; figure 1); and variable length coding the quantized blocks of the frames (column 7, lines 14-17; figure 1, 127) .

As to claim 4, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: adding a full resolution motion compensated prediction of a previous decoded frame to the current frame (column 10, line 38- column 11, line 6; figures 7-8).

As to claim 5, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: subtracting a reduced resolution motion compensated prediction of a previous reduced resolution frame from the current reduced resolution frame (column 7, lines 1-10; figures 1-2).

As to claim 6, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: estimating the reduced resolution motion vectors from the reduced resolution frames (column 7, lines 1-9; column 8,lines 36-40; figure 1, 120; figure 2).

As to claim 7, Christopoulos teaches a method for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: mapping the full-resolution motion vectors to the reduced resolution motion vectors from the variable length decoded frames (column 6, line 53- column 7, line 49; figure 1, 113).

As to claim 8, Christopoulos teaches a closed-loop transcoder for reduced spatial resolution transcoding of a compressed bitstream of a sequence of frames of a video signal, comprising: a decoder with motion compensation using full resolution motion vectors stored in a first frame buffer to generate partial decoded frames from the compressed bitstream (column 6, line 24-65; figure 1); a down-conversion block to down-sample the decoded frames to reduced resolution frames (column 6, lines 53-65; figure 1, 113); and a partial encoder with motion compensation using reduced resolution motion vectors stored in a second frame buffer to generate a reduced spatial resolution compressed bitstream of the video (column 7, lines 1-49; figures 1-2).

Conclusion

2.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

i. U.S. Patent 6625216, Zhu: Zhu teaches a method for transcoding comprising motion compensation (column 9, lines 40-60; figure 5);

ii. U.S. Patent 5940130, Nilsson et al.; Nilsson teaches a

method for transcoding comprising motion compensation (column 4, lines 6-20;
figures 1, 3-5);

      iii. U.S. Patent 6647061, Panusopone; Panusopone teaches a
method for transcoding comprising motion compensation (column 7, lines 10-40;
figures 4-5).

      Any inquiry concerning this communication or earlier communications from
the examiner should be directed to Anika Talapatra whose telephone number is
571-272-6039. The examiner can normally be reached on Monday to Friday,
08:00-16:30.

      If attempts to reach the examiner by telephone are unsuccessful, the
examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021.
The fax phone number for the organization where this application or proceeding
is assigned is 703-872-9306.

      Information regarding the status of an application may be obtained from
the Patent Application Information Retrieval (PAIR) system. Status information
for published applications may be obtained from either Private PAIR or Public
PAIR. Status information for unpublished applications is available through
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direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-
free).

A.T.
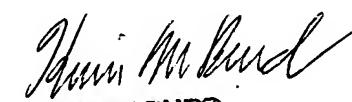
KEVIN BURD
PRIMARY EXAMINER